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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/939,767	08/28/2001	Shunpei Yamazaki	740756-2358	3748

31780 7590 12/18/2002

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EXAMINER

HOGANS, DAVID L

ART UNIT

PAPER NUMBER

2813

DATE MAILED: 12/18/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/939,767

Applicant(s)

YAMAZAKI, SHUNPEI

Examiner

David L. Hogans

Art Unit

2813

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 September 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 13-34 is/are pending in the application.
- 4a) Of the above claim(s) 13-34 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 13-34 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 August 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

This Office Action is in response to Amendment A/Election filed on September 30, 2002.

Status of Claims

Claims 1-7, directed to a device, are elected without traverse. Claims 8-12, directed to a method, are cancelled. Newly submitted Claims 13-34 are restricted.

Election/Restrictions

1. Applicant's election without traverse of Claims 1-7 in Paper No. 5 is acknowledged.
2. Newly submitted Claims 13-34 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: Claims 13-34, as claimed by Applicant, are directed to an Apparatus.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, Claims 13-34 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 112

3. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant

regards as the invention. Claim 1 lines 8-9, claims "wherein source and drain regions formed in said active layer contain said catalyst element than other regions in said active layer". Examiner is uncertain what " ... contain said catalyst element than other regions ..." means?

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over 5,550,070 to Funai et al in view of 5,459,090 to Yamazaki et al.

Claims 1, 2 and 3

Funai et al. teaches: a silicon active layer containing a nickel catalytic element for promoting crystallization (See column 8 lines 33-38), a gate insulating film interposed between a gate electrode and the active layer (See column 9 lines 44-47), and source/drain regions that contain said nickel catalyst (See column 9 lines 55-64).

Funai et al. fails to explicitly teach a gate electrode comprised by a heat resistant material.

However, Yamazaki et al., in column 8 lines 1-10, teaches a gate electrode comprised by tantalum. Further, Yamazaki, in column 8 lines 10-15, notes that refractory metals, such as tantalum, are commonly employed because they offer lower resistivities.

It would have been obvious to one of ordinary skill in the art to modify Funai et al. by incorporating a gate electrode comprised by tantalum, as taught by Funai et al., to improve the performance of a TFT device since such technology was well known at the time of the invention.

Claim 4

Incorporating all arguments of Claim 1 and noting that Funai et al., in column 9 lines 55-64 and columns 8-9 lines 67-05, teaches wherein the concentration of said catalytic element in said source and drain regions is higher than the concentrations in other regions. Funai et al. discloses the Applicant's claimed invention except for the concentrations of the regions varying by two or more orders of magnitude. It would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize this concentration difference, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233 (CCPA 1955).

Claim 5

Incorporating all arguments of Claim 1 and noting that Funai et al., in column 9 lines 55-64 and columns 8-9 lines 67-05, teaches wherein the concentration of said catalytic element in said channel region is less than the concentration of said catalytic element in the source and drain regions. Funai et al. discloses the Applicant's claimed invention except for the concentration within the channel region being less than 5×10^{16} atoms/cm³. It would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the channel regions concentration, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233 (CCPA 1955).

Claim 6

Incorporating all arguments of Claim 1 and noting that Funai et al., in column 14 lines 1-5, teaches a catalytic element selected from the group consisting of Fe, Co, Ni, Pd, Pt, Cu and Au.

Claim 7

Incorporating all arguments of Claim 1 and noting that Yamazaki et al., in column 8 lines 1-10, teaches a tantalum gate electrode that has a melting point of 2985 °C.

Conclusion

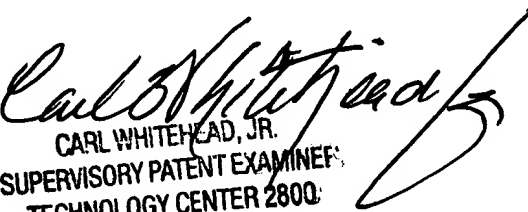
Any inquiry concerning this communication or earlier communications from the examiner should be directed to David L. Hogans whose telephone number is (703) 305-3361. The examiner can normally be reached on M-F (7:30-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead Jr. can be reached on (703) 308-4940. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

dh 

December 11, 2002


CARL WHITEHEAD, JR.
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800